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ABSTRACT

A comprehensive and integrated basic studies program formulated in 1970 at a community college is discussed. To examine the effects of the program, applicants who graduated in the lower four-fifths and five-fifths of their high school class were randomly assigned to an experimental group and a control group. Students in the experimental group were interviewed by basic studies counselors; those interested registered for one or more courses. An overall comparison was made between the basic studies group and the control group with regard to grade point average, rate of success, persistence, and the number of credits earned, failed and withdrawn, and the grades for English composition I and mathematics earned in the second semester. Specific comparisons were also made for students in each group who ranked in the lower four-fifths of their class and for those who ranked in the lower five-fifths of their class. In the overall comparison, there was little difference in academic performance between students in the basic studies and control groups. In English composition I, success rates were comparably independent to warrant inference of an experimental effect. There was a significant difference for success rates in mathematics by students in basic studies. It was suggested that more use of the results, of the Comparative Guidance and Placement Tests be made. It was recommended that basic studies students continue in group counseling. (Author/CK)

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THE EFFECTS OF THE BUCKS COUNTY COMMUNITY COLLEGE BASIC STUDIES PROGRAM ON THE SCHOLASTIC PERFORMANCE OF ACADEMICALLY HIGH-RISK STUDENTS

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August, 1973

JC 730 266

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ABSTRACT

From its very inception, Bucks County Community College has actively pursued the development of the potential of human resources within the community it serves as so expressed in its philosophy. The college is committed to an open door policy and not unlike many other colleges, has been sensitive to the needs of academically high-risk students. In a joint effort to meet these needs, a comprehensive and integrated basic studies program was formulated in 1970. The proposal was approved the following year and processes to activate the program began in 1972. In concomitance with the basic studies proposal, it was suggested that the program be studied within appropriate research guidelines. Approval for this research project was granted shortly afterwards.

In order to examine the effects of the new basic studies program, applicants who graduated in the lower four-fifths and five-fifths of their high school class were randomly assigned to an experimental group and a control group.

Students in the experimental group were interviewed by basic studies counselors. Those interested in the program registered for one or more basic studies courses

and were assigned to a basic studies advisor. Students in the control group were registered during the regular summer advising period. Students who chose not to participate in either of the two groups were excluded from this study. There were 119 students registered in the basic studies group and 124 students in the control group.

An overall comparison was made between the basic studies group and the control group with regard to grade point average, rate of success, persistence, and the number of credits earned, failed and withdrawn. A comparison was also made of grades for English composition I and mathematics earned in the second semester.

In addition to the above, specific comparisons were made for students in each group who ranked in the lower four-fifths of their class and for students ranked in the lower five-fifths of their class.

In the overall comparison, there was little difference in academic performance between students in the basic studies and control groups. The gpa average, persistence rate, and number of credits earned were not significantly different. Only in English composition I, taken in the second semester, were success rates comparably independent to warrant inference of an experimental effect.

There was a significant difference for success rates in mathematics by students in basic studies. A more detailed analysis revealed that this difference may have been due to a generalized effect of the program rather than any particular mathematics course.

When consideration was given to high school rank, it was found that basic studies students, who ranked in the lowest fifth of their class, earned higher gpa's, maintained a greater rate of success, and accumulated more credits than students in the control group.

With regard to the basic studies program itself, it was found that the number of basic studies credits earned did not bias academic outcome. No particular basic studies course could be attributed as having a biasing effect on academic outcome.

One reason the overall findings were not conclusive is that students ranked in the fourth quintile of their high school class may not necessarily be academic risks. Additional selective variables are needed to identify high risk students beside rank in class.

It was suggested that more use of the results of the Comparative Guidance and Placement Tests be made, particularly the Academic Motivation score. Earlier testing dates was also recommended in order that results of the test could be available to advisors.

Finally, it was recommended that basic studies students continue to participate in group counseling programs. Consistently positive results were demonstrated whenever developmental courses and group counseling were included in these programs.

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I. INTRODUCTION

From its very inception, Bucks County Community College has actively pursued the development of the potential of human resources within the community it serves as so expressed in its philosophy. The college is committed to an open door policy and not unlike many other colleges, has been sensitive to the needs of academically high-risk students. In a joint effort to meet these needs, a comprehensive and integrated basic studies program was formulated in 1970. The proposal was approved the following year and processes to activate the program began in 1972. In concomitance with the basic studies proposal, it was suggested that the program be studied within appropriate research guidelines. Approval for this research project was granted shortly afterwards.

Statement of the Problem

The problem of this study was to investigate the effects of the basic studies program upon selected academic variables. Criteria emphasized were grade point averages (gpa), persistence, credits earned, and grades earned in subsequent courses in mathematics and English Composition I.

Purpose of the Study

The purposes of this study were to assess the effect of the basic studies program upon selected academic variables and to discern additional factors which will assist in the appropriate identification of academically high-risk students.

Background

Bucks County Community College is committed to an open-door admission policy. It is an acceptance policy which is not dependent on past academic performance. This policy places upon the college the very serious responsibility to identify applicants who are academic risks and to provide specific and functional developmental programs, while at the same time, integrating these students into appropriate curriculums.

A descriptive profile of the entering BCCC student indicates the full spectrum of past academic performance (Table 1). One effect of an open door policy is evident in that entering students ranked in the lowest fifth of their graduating class, are equally represented with students graduating in the first fifth of their class. At least 30 to 35 percent of entering students rank in the lowest 4/5 and 5/5 of their graduating class. These percentages approximated about 400 students that have been accepted each year of which a substantial number could be classified high risks academically.

The academic performance of these students while attending Bucks County Community College has not been sufficiently documented, consequently, any generalizations which can be inferred are stated with some reservation. Reports on the cumulative academic standings of day students indicate that 17 to 18 percent of all students are in either a probationary or disqualified status. These reports do not differentiate students on basis of high school rank.

A study of the academic performance of BCCC freshmen entering college in the Fall 1970 semester, reported that 51 percent of students ranked in the lower 2/5 of their high

TABLE 1

PERCENT DISTRIBUTION BY HIGH SCHOOL RANK OF ALL BUCKS COUNTY COMMUNITY COLLEGE STUDENTS

Academic Year	not known	High School Rank (Quintile) 5/5	4/5	3/5	2/5	1/5
1972	14	13	20	22	19	12
1971	10	11	22	25	20	12
1970	7	12	23	27	20	11
1969	?	8	27	31	23	11
1968	?	17	24	29	20	10
1967	?	13	29	30	20	8

1. percentages are rounded to nearest whole number.

school class were able to maintain a 2.0 average in the first year of college. Only 31 percent of these students earned 24 or more credits (Licopoli, 1971). At the completion of their second year, it was estimated that 35 percent of these students maintained a C average and accumulated 48 credits while 18 percent accumulated 60 credits in two years. About half the students graduating in the highest fifth of their high school class were able to accumulate 60 credits in two years and maintain a 2.0 average (Table 2).

Although the high school rank should prove to be an important discriminating variable it can only account for about 20% of the variance in academic performance. In the same study, it was demonstrated that the academic motivation score of the Comparative Guidance and Placement Program (CGPP) was also a significant variable. By combining these two, further discrimination of academically high risk students was possible (Table 3).

Some marked differences in achievement scores (CGP) are also noted. With exception of the mathematics subtests, students ranked in the 4/5 and 5/5 of their high school class scored lower than the total College population. The greatest differences are found in scores

TABLE 2

TWO YEAR FOLLOW-UP ON THE ACADEMIC PERFORMANCE FOR BUCKS COUNTY COMMUNITY COLLEGE STUDENTS ENTERING COLLEGE FALL 1970

HS Rank	N	First year				Second year					
		2.0 avg		24 cred		2.0 avg		48 cred		60 cred	
		n	%	n	%	n	%	n	%	n	%
1/5	169	152	90	129	76	141	83	102	60	85	50
2/5	310	232	75	191	62	240	77	167	54	117	38
3/5	423	297	70	214	50	295	70	199	47	136	32
4/5	360	201	56	123	34	206	57	143	40	69	19
5/5	219	96	44	59	27	88	40	60	27	34	16
*	1591	1045	66	752	47	1041	65	704	44	464	29

* totals include students whose rank were not known.

TABLE 3

SELECTION OF VARIABLES WHICH BEST PREDICT GPA

Criterion	Predictor	r	level of significance	st'd error	'r' test of comparison
gpa	1. H.S. Rank (Quintile)	.446	.01>p	.653	N.A.
	2. Academic Motivation Score(CGP)	.451	.01>p	.647	.025>p>.01

on the reading, verbal, sentences, and academic motivation subtests by students ranked in the lowest fifth of their class (Table 4).

In a study which investigated differences between returning and nonreturning community college freshmen, similar variables were identified including significant differences in the CGP achievement test scores. A significant difference in the Academic Motivation score was also found between the two groups (DeVecchio, 1972).

High school English and mathematic grades were examined. It was found that 95% of students in the lowest fifth of their class were not able to earn a C average in both English and mathematics. Approximately 80% of students in the 4/5 of their class were not able to maintain a C average in both subjects.

The past efforts of Development English and Developmental Mathematics should not be overlooked. Described as either a review course (English 100) or elementary algebra course (Mathematics 300), these courses were made

TABLE 4

COMPARISON OF CGP TEST SCORES FOR TOTAL COLLEGE WITH CGP SCORES FOR STUDENTS RANKED IN THE TWO LOWEST QUINTILES OF THEIR HIGH SCHOOL CLASS

CGP test	College		4/5		5/5	
	Avg	sd	Avg	sd	Avg	sd
Reading	52.9	9.5	50.8	8.8	47.5	8.0
Verbal	53.0	8.2	51.1	7.6	48.2	7.6
Sentences	51.7	8.4	48.1	6.8	45.9	7.0
Mathematics	51.6	8.5	52.0	9.2	49.2	8.8
Academic Motivation	50.3	8.6	46.8	8.8	44.0	11.0

available to students whose test scores or high school grades were deficient indicating in part, a need to review fundamentals or to supplement their preparation for college level work. English 100 was to prepare the student for English Composition I, and Mathematics 300 was exclusively offered as a preparation for subsequent mathematic courses related to science-oriented curriculum (Volker, 1970). A search through the computer master file was carried out making possible a summary compilation of all students who successfully undertook a development course (Table 5). According to the summary, about 68% of students successfully completing English 100 were able to earn a C or better in English Composition I. In the developmental mathematics course 90% of the students were able to successfully continue in subsequent mathematics courses. The overall academic performance of these students was also taken into account. For the developmental English students, 47% were academically successful; for the developmental mathematic students, 61% were successful.

Reading and study skills courses were added to the college course offerings in the Fall, 1969. Students who ranked in the lowest quintile of their high school

TABLE 5

SUMMARY FOLLOW-UP OF ALL STUDENTS WHO SUCCESSFULLY COMPLETED DEVELOPMENTAL COURSES AT BCCC

Developmental Course	Total	No. Passed	Academic Performance		Completed next course	
			2.0 Avg	60 cred	No.	Passed
English 100	537	431	203	93	334	227
Mathematics 300	703	367	225	115	363	328

1. The next course after English 100 was English Composition.
2. After Math 300, any math or business math course.

class and whose verbal SAT score were less than 400 were invited to participate in the program. Forty-one students volunteered to take the course; the remaining students were placed in a control group.

A follow-up report indicated that students participating in the reading and study skills course earned significantly higher gpa's than students in the control group (Rosella, 1970). Students in the reading course were also able to earn significantly higher grades in English Composition I. The significance of this study might be partially diminished since no effort was made to account for a bias brought about by students volunteering to participate compared to students who did not volunteer.

It becomes apparent that as the college enrollment increased significantly, the developmental and remedial course offerings, although expanded, became less available to students who needed them most. The enrollment has exceeded 1300 new students each year for the past four years. At least 300 of these students were probably academic risks. Yet the combined enrollment for developmental courses was less than 150 students in any semester.

Other discrepancies became increasingly apparent. Students whose high school experiences were less than positive retain poor self-concepts, undefined life goals, and inappropriate or unresolved vocational goals. The problem is not only to modify academic deficiencies, but for many of these students, the problem is to structure specific opportunities in which they can re-evaluate and determine new personal and vocational goals.

As each discrepancy became pronounced with the effects of a rapidly growing College, it generated the development of a basic studies program which would direct itself to the specified needs of an identifiable portion of the student population.

Hypotheses

Discussions with both the committee of developmental education and the basic studies department were held regarding the main questions of this study. It was agreed that as many academic variables that could feasibly be explored, should be investigated. The gpa, persistence, credits earned, and success in subsequent mathematics and English composition courses were examined.

It was hypothesized that

1. The basic studies students will achieve significantly higher grade point averages than students in the control group at the end of the first academic year.

   a. Basic studies students ranked in the 4/5 of their high school class will achieve significantly higher gpa's than similar students in the control group.

   b. Basic studies students ranked in the 5/5 of their high school class will achieve significantly higher gpa's than similar students in the control group.

2. The basic studies students will achieve significantly higher success rates than students in the control group at the end of the first academic year.

   a. Success rates of students ranked in the 4th quintile of their class will be similarly tested.

   b. Success rates of students ranked in the 5th quintile of their class will be similarly tested.

3. The basic studies students will achieve significantly higher rates of persistence than students in the control group at the end of the first academic year.

4. There is no significant difference in the number of earned college credits, credits failed, or credits withdrawn by basic studies students and by students in the control group at the end of the first academic year.

5. The basic studies students will achieve significantly higher success rates in English Composition I than students in the control group.

6. The basic studies students will achieve significantly higher success rates in subsequent mathematics courses than students in the control group.

7. There are no significant differences in the success rates of basic studies students with relationship to the number of basic study credits earned.

8. There are no significant differences in the success rates of basic studies students with relationship to each of the basic study courses.

Definitions

The following definitions were adopted:

1. Persistence. The student has pursued and earned credits each successive semester including registering for the Fall, semester 1973. Persistence, as a variable, is treated independently of gpa.

2. Success. The student has maintained a 2.0 average independent of the number of credits earned.

3. Basic studies student. The student, having been randomized into the experimental group, did participate in at least one designated basic study course during the Fall semester, 1972.

II. REVIEW OF PAST RESEARCH

College students with academic problems have not been lacking in attention by standard of the quantity of available research written about them. A synthesized review of these studies becomes difficult because of the wide variation of treatments offered to remediate college student's academic difficulties. Types of treatments studied ranged from comprehensive basic studies programs, a combination of basic skill courses and some type of developmental counseling, or simply some form of guidance and counseling.

Studies dealing with specific remedial academic courses are available in the literature. Many were found to be process studies rather than outcome studies and have been excluded from this review.

In a state wide evaluation of developmental programs offered in public junior colleges in the state of Maryland, Busky, 1972, was not able to determine conclusively, whether their programs were successful. It was his observation that the best approach to successful developmental programs was a combination of strong courses, carefully selected instructors, and the assignment of credit.

The basic studies program at Miami-Dade junior college was evaluated. Students participating in a comprehensive mathematics, writing, reading, and educational planning

program did not do significantly better academically than the control group (Handy, 1966). Neither was Heinkel, 1969, able to determine any significant findings in his evaluation of the general studies program at San Diego City College.

Significant positive differences in gpa earned by students participating in remedial courses were found by a number of more recent studies (Livingston, 1972; Mynatt, 1973; and Thommes, 1970). Livingston, 1972, examined in some detail the enrollment procedure for selecting students for remedial courses. He concluded that the selective criteria for the developmental program were inadequate, and that the existing procedures were slightly less unproductive compared to students who chose their own courses.

Studies evaluating combined remedial and counseling programs were able to report positive findings with some consistency. Ankenbrand, 1972, reported positive results in the differences in gpa between experimental and control groups. He was also able to determine that high risk students demonstrated poor self-concepts. Ankenbrand was not able to differentiate the effects of a group structured and leader-structured group, although both proved significantly more effective than the control group.

Study skills courses, used in conjunction with some form of group counseling, were able to effect positive findings on the academic performance of students in the treatment group (Anthony, 1971, and Bednar & Weinber, 1970). Anthony, 1971, was not able to differentiate the effects of a study skills course and a self-understanding program. However, both were significantly more effective than the control group.

A number of studies examining the effects of group counseling were concerned with college students classified as having some form of academic difficulty. Although other criteria were involved, gpa was the most common criterion in which positive gains were sought. About half the studies were able to report positive significant results (Abel, 1967; DeWeese, 1960; Hart, 1964; LeMay, 1966; Roth, Mauksch, & Peiser, 1967; Sheldon & Landsman, 1950; Teahan, 1966).

Although there were no studies found which reported negative results regarding grades, a number of studies reported no changes. Duncan (1962) did not find a significant increase in gpa among students in the counseling groups when compared to students in the control group, Kaye (1971) evaluated the effects of a guidance-counseling-study skills treatment program. Upon completion of the experiment, gpa of the treatment group was not significantly different from that of the control group.

Other studies concerned with personal and social adjustments of college students were for the most part inconclusive. Rhode (1965) reported no significant differences in self-acceptance and acceptance of others between students participating in group counseling and individually counseled students. Only with students who were individually counseled, was a positive significant change in self-acceptance reported. Smith (1971) compared the effects of short-term individual counseling, group counseling, and sensitivity training on self-concepts of male college students. Smith found no trends which might have distinquished the treatments. Trotzer and Sease (1971) were likewise unable to distinquish the effects of group-centered and topic-centered counseling methods on the self-concepts of college students, despite the confirmation of significant differences in facilitating conditions between the two methods.

Outcome research in group counseling points to a number of conclusions. Regarding criterion variables, the gpa in more than half the studies is reported to be significantly higher among students who were involved in group experiences as compared with students in control groups. The type and quality of the group experiences themselves are not documented sufficiently to account for differences and if reported, seem to have little relationship with processes described in other studies. It would be difficult to infer that any one type of group process accounts for an improvement in gpa.

The studies which evaluated counseling processes demonstrated some success. Positive relationships were reported between certain therapeutic conditions and changes in student attitudes or self-adjustments (Dickenson & Trauax, 1966; Thelen & Harris, 1968). Chestnut (1965) and Gilbreath (1967, 1968) demonstrated the differential effects of structured and nonstructured group counseling on two types of underachieving students. It would seem important that outcome studies take into account student differences and differences in therapeutic conditions as Gazda (1971) and Myers (1971) have suggested.

The findings generally remain inconclusive. Selective criteria for some of these programs may have been inadequate. It remains uncertain whether the student's academic deficiency is in fact academic, or emotional and psychological, or both. Those occasions where the research study demonstrates at least broadly, that both areas of deficiency were being remedied, results proved to be positive and significant.

III. PROCEDURES

Students participating in this study were entering college freshmen for the Fall, 1972 semester. With the assistance of the Admissions and Computer Center offices, applicants whose rank in high school were in the lower fourth and fifth quintiles of their graduating class were identified. An IBM card was provided for each individual student. The cards were then randomized into the study groups.

Approximately one third of the students ranked in the fourth quintile were selected for the experimental group; one third were selected for the control group; the remaining third did not participate in the study. One half of the students ranked in the fifth quintile of their high school class were selected for the experimental group and the remaining half for the control group.

Procedure for the Experimental Group

A total of 159 students were selected for the experimental group. These students received an invitation from basic studies counselors to meet in June, 1972 for an interview. All but 18 of the students attended the interview.

The interview consisted of a review of the student's records, an evaluation of his academic needs, and an introduction to the basic studies program. Registration into courses for the first semester was also part of the procedure, whether the student elected to take basic study courses or not. Nineteen students designated for the experimental group chose not to take any basic studies courses. These students were excluded from the study group.

The students who did elect to participate in the basic studies program were assigned advisors who were either basic studies instructors or college counselors. These advisors remained assigned to the students until they were completed with the basic studies program. Reassignments took place when the students resumed participation in a regular academic curriculum.

Participation in the program consisted in taking one or more of the basic studies courses, and meeting with their advisor on a regular basis. These students participated in a variety of study skills evaluations and vocational testing. They received guidance with reference to results of these tests and evaluations by their advisors which were part of an ongoing process of tutoring, guidance, and curriculum advising. Each basic studies instructor had the additional responsibility of providing ten office hours per week

throughout the semester. On basis of the total enrollment of students in the program, the availability of these additional office hours allowed any one student to meet with instructors or advisors two hours per week or thirty additional contact hours in the semester.

Procedure for the Control Group

There were 151 students assigned to the control group. These students were excluded from taking any basic studies courses. They were interviewed and registered for classes by regular summer advisors. A memo was placed in the interview folder of each student in the control group reminding the summer advisor not to assign the student any basic studies course. These students were not assigned to advisors who were basic studies counselors, but to regular academic advisors.

There were twelve students who never registered for the first semester and fifteen students who did take one or more basic studies course. These students were excluded from the study.

Procedure for the Analysis of Data

Most of the analyses will be comprised of comparative testing of two-fold populations; i.e., successful students versus unsuccessful. Either the chi square or independent

sample proportions are appropriate tests for independence with these data (Tate & Clelland, 1957, p. 84).

In the case of independent samples from manifold populations, the contingency test for independence is a simple yet powerful measure (Tate & Clelland, 1957, p. 70).

A problem arises in the test of independency of continuous variables, such as the gpa, when taking into account the effects of high school rank. The problem was whether to elect the analysis of variance test or the "t" test for independence. For the sake of demonstration, both tests will be presented, but the purpose of this study, the "t" test for independence is considered to be adequate.

When dealing with two independent samples, the analysis of variance and the "t" test are basically the same (Ferguson, 1966, p.293). What the analysis of variance permits is the evaluation of interactions between factors. The high school rank is being treated independently since traditionally, the college has in analysis of the student performance, addressed itself to the quintile rank. To study the differential effects of high school rank is not within the scope of this study. Consequently, the "t" test for independent means seems appropriate.

IV. RESULTS

Analyses of data are presented as follows:

Hypothesis 1.

No significant differences were found in the grade point averages between students in the experimental and control groups (Table 6).

Results of examining the quintile groups separately points to findings approaching significance for students ranked in the lowest fifth of their high school class (Table 7). No differences in gpa for fourth quintile students were found.

Hopothesis 2.

Success rates, that is, the ability to maintain a C average or better, by fifth quintile students in the experimental group approached significance when compared to students in the control group. In a total comparison, however, no differences were found in success rates between the two groups (Table 8).

Hypothesis 3.

In both separate and total comparisons, neither fourth or fifth quintile students in the experimental groups proved to have significantly greater rates of persistence than the control group (Table 9).

TABLE 6

SUMMARY OF ANALYSIS OF VARIANCE OF GPA FOR THE STUDY GROUPS

Source	d.f.	Sum of Squares	1. Adjusted	Mean Square	F	'p'
Treatment	1	2.28	2.29	2.29	1.61	$p > .10$
Quintile Rank	1	.20	.21	.21	.15	$p > .10$
Interaction	1	2.35	2.34	2.34	1.65	$p > .10$
Within	218	309.22		1.42		
Total	221					

1. Proportional adjustments applied due to unequal cells.

TABLE 7

SUMMARY OF GPA AVERAGE FOR THE STUDY GROUPS

HS Rank	Experimental N	$\bar{X}$	sd	Control N	$\bar{X}$	sd	'p'
4/5	68	1.58	1.21	75	1.53	1.20	$p > .20$
5/5	38	1.74	1.20	41	1.26	1.07	$.10 > p > .05$ [1]

1. Difference between the averages approaches significance at the .05 level.

TABLE 8

SUMMARY OF OVERALL SUCCESS RATE FOR THE STUDY GROUPS

HS Rank	Study Group	Successful (C avg +) yes	Successful (C avg +) no	'p'
4/5	Experimental	42	27	$p > .20$
	Control	44	31	
5/5	Experimental	23	17	$.10 > p > .05$ [1]
	Control	16	25	
Total	Experimental	65	44	$p > .20$
	Control	60	56	

1. Success rate for the experimental group approaches significance at the .05 level.

TABLE 9

SUMMARY OF OVERALL PERSISTENCE RATE FOR THE STUDY GROUPS

HS Rank	Study Group	Registered Fall, 1973		'p'
		yes	no	
4/5	Experimental	44	29	p>.20
	Control	47	33	
5/5	Experimental	24	22	p>.20
	Control	24	20	
Total	Experimental	68	51	p>.20
	Control	71	53	

1. No significant differences were found.

A closer examination of the success rates of these students who were registered for the fall semester, 1973, revealed that the differences approached significance when the total groups were compared. The difference in success rates between groups at the fifth quintile proved significant at the .01 level (Table 10).

Hypothesis 4.

No significant differences were found between groups with regard to credits earned, credits failed, or credits withdrawn. An analysis of variance of credits earned was unable to demonstrate any significance for treatment, high school rank, or interaction effects (Table 11). The actual number of credits earned favored students in the experimental group, particularly fifth quintile students. These students earned an average of 2.6 more credits than the control group (Table 12). On the average less credits were failed by the experimental group, but the difference was not significant (Table 13). Finally, the average number of credits withdrawn by the experimental group was slightly less than that of the control group (Table 14).

Hypothesis 5.

Comparison of rates of success in English Composition I prove to be significantly different and in favor of students

TABLE 10

SUMMARY OF THE SUCCESS RATE FOR STUDENTS RETURNING FOR THE FALL SEMESTER 1973

HS Rank	Study Group	Successful		'p'
		yes	no	
4/5	Experimental	34	10	$p > .20$
	Control	38	9	
5/5	Experimental	20	4	$.01 > p$
	Control	11	13	
Total	Experimental	54	14	$.20 > p > .10$
	Control	49	22	

1. Difference is significant at less than .01 level.

TABLE 11

SUMMARY OF ANALYSIS OF VARIANCE FOR CREDITS EARNED BY THE STUDY GROUPS

Source	df	Sum of Squares		Mean Square	F	'p'
		unadjusted	adjusted			
Treatment	1	84.83	84.35	84.35	1.21	$p > .10$
HS Rank	1	147.73	147.25	147.25	2.12	$p > .10$
Interaction	1	42.55	43.04	43.03	.62	$p > .10$
Within	199	13837.44		69.53		
Total	202	14112.55				

1. Proportional adjustments applied due to unequal cells.

TABLE 12

AVERAGE NUMBER OF CREDITS EARNED BY THE STUDY GROUPS

HS Rank	Experimental N	$\bar{X}$	sd	Control N	$\bar{X}$	sd	'p'
4/5	63	19.22	8.36	70	18.60	8.27	$p > .20$
5/5	33	18.45	8.31	37	15.89	8.01	$.20 > p > .10$

TABLE 13

AVERAGE NUMBER OF CREDITS FAILED BY THE STUDY GROUPS

HS Rank	Experimental			Control			'p'
	N	$\bar{X}$	sd	N	$\bar{X}$	sd	
4/5	63	2.40	3.61	70	3.07	4.80	$p > .20$
5/5	33	3.45	4.75	37	3.24	3.92	$p > .20$

TABLE 14

AVERAGE NUMBER OF CREDITS WITHDRAWN BY THE STUDY GROUPS

HS Rank	Experimental			Control			'p'
	N	X	sd	N	X	sd	
4/5	63	2.75	3.73	70	3.53	4.11	$p > .20$
5/5	33	4.12	4.91	37	4.35	4.46	$p > .20$

in the experimental group (Table 15). Thirty-two basic studies students elected to take English Composition I in the second semester. Twenty-four students were able to earn a C or better in comparison with eight of twenty students in the control group. This difference proved to be significant at the .05 level.

Hypothesis 6.

In the overall comparison between the groups, it appears that a significant difference was found in the success rate in mathematics by students in the experimental group (Table 16). However, caution is needed because of a difficulty in the analysis of these data.

The grades in mathematics are grades earned in the second semester in any mathematics courses excluding basic studies mathematics. The question arises whether certain kinds of mathematics courses taken in the first semester are influencing the outcome. Both the experimental and control groups were subdivided and compared on the basis of those students taking a regular mathematics course in the first semester; or students taking basic algebra; and finally, students who took no mathematics at all.

Two by two tables were constructed for these comparisons and analysed. Due to small sample sizes in the individual

TABLE 15

COMPARISON OF SUCCESS RATE FOR STUDY GROUPS TAKING ENGLISH COMPOSITION I IN THE SECOND SEMESTER

Study Group	Successful	Unsuccessful	'p'
Experimental	24	8	$.05 > p > .01$
Control	8	12	

Difference in success rate was found to be significant at the .05 level.

TABLE 16

COMPARISON OF SUCCESS RATE FOR STUDY GROUPS TAKING MATHEMATICS COURSES IN THE SECOND SEMESTER

Study Group	Successful	Unsuccessful	'p'
Experimental	10	8	.05>p>.01
Control	6	19	

Difference in success rate was found to be significant at the .05 level.

cells, exact probabilities were calculated permitting determination of levels of significance in the differences between the groups (Tate & Clelland, 1957, p. 73).

No significant differences between groups were determined (Table 17). An inspection of the distributions does demonstrate that students who had some kind of mathematics the first semester succeeded at a higher rate than the students electing not to take mathematics. The comparisons, however, do not seem to differentiate the effect of basic algebra compared to regular mathematics courses. The positive effects found in the overall comparison may be due to some variable other than mathematics.

Hypothesis 7.

Some regard was given to the possibility that the more basic studies credits earned, the greater the effect that it will have on the academic success of the student. Equally concerning would be the biasing effects of "easy" grades and their contribution to the gpa.

The results of the contingency test were not significant with the chi square value of 1.037 at 3 degrees of freedom (Table 18).

Without any significant differences in the success rates of students completing from two to eight basic studies credits, there is little reason to believe that earning

TABLE 17

COMPARISON OF SUCCESS RATE IN MATHEMATICS FOR STUDY GROUPS COMPLETING EITHER A REGULAR MATHEMATICS COURSE, BASIC ALGEBRA, OR NO MATH IN THE FIRST SEMESTER

Type of Math in First Semester	Study Group	Successful	Unsuccessful	'p'
Both groups completed 'regular' math course	Exp	5	1	.20>p>.10
	Contr	4	8	
Basic Alg	Exp	4	3	p>.20
'regular'	Contr	4	8	
none	Exp	1	4	p>.20
none	Contr	2	11	

TABLE 18

COMPARISON OF SUCCESS RATE AND THE NUMBER OF BASIC STUDIES CREDITS EARNED BY THE EXPERIMENTAL GROUP

Number of Basic Studies Credits	Successful	Unsuccessful
8	18	11
6	24	14
4	17	14
2	6	5

1. Chi square = 1.037 at 3 d.f., no significance.
2. Each Basic Studies course was 2 credits.

more basic studies credits implies a better success rate academically.

There is less reason to believe that grades earned in basic studies were any easier. In a comparison of grade distributions among the college departments, grades in basic studies courses were no different in distribution than the rest of the grades (Table 19).

Hypothesis 8.

It was necessary to determine whether any one of the basic studies courses might have had an effect on academic performance. The contingency test was applied and no significant differences were found which might have supported the assumption that one basic studies course had more of an effect than another (Table 20).

TABLE 19

1972-73 GRADE DISTRIBUTIONS FOR ALL COURSES, MATHEMATICS, ENGLISH COMPOSITION, AND BASIC STUDIES COURSES

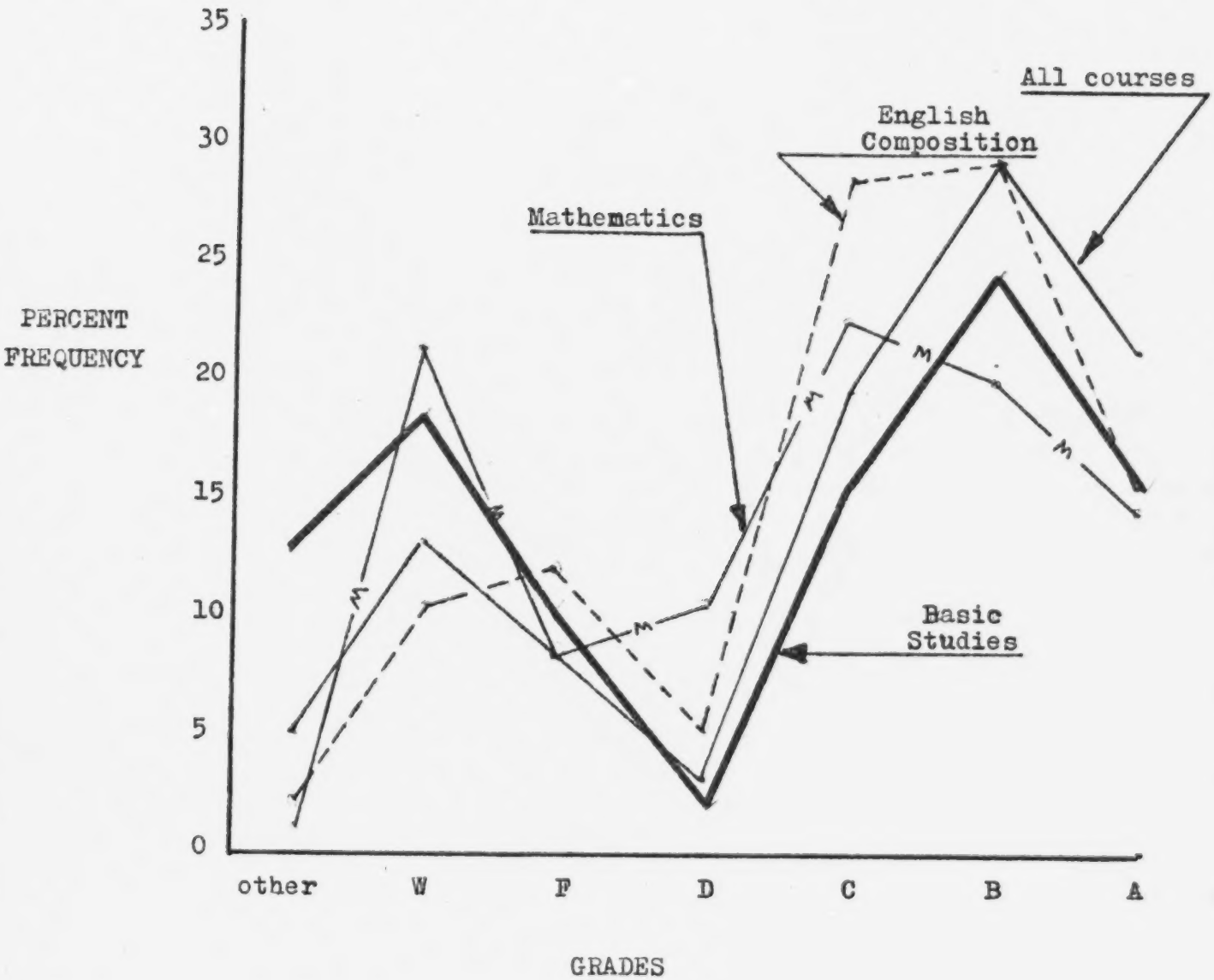

TABLE 20

COMPARISON OF SUCCESS RATE AND EACH BASIC STUDIES COURSE COMPLETED BY THE EXPERIMENTAL GROUP

Basic Study Course	Successful	Unsuccessful
Basic Writing	49	33
College Reading	64	40
Psychology of Personal Adjustment	44	25
Basic Algebra	30	18

1. Chi square = .271 at 3 d.f., no significance.

V. CONCLUSIONS AND RECOMMENDATIONS

Conclusions

In the overall comparison, there was little difference in academic performance between students in the experimental and control groups. The gpa average, persistence rate, and number of credits earned were not sufficiently independent to distinguish the effects of the basic studies program. Only in English Composition I were success rates comparably independent to warrant inference of an experimental effect. There was a significant difference for success rate in mathematics but this may have been due to a generalized effect of the program rather than any particular mathematics course.

When consideration was given to high school rank, significant differences were found in the academic performance of students ranked in the lowest fifth of their high school class. They earned higher gpa's, maintained a greater rate of success, and accumulated more credits than similar students in the control group.

Within the course offerings of the program, the number of basic studies credits earned made little difference on academic success. No particular basic studies course could be attributed as having an effect on experimental outcome.

Discussion and Recommendations

1. A second year follow-up on the academic progress of the students in this study is recommended. Success by curriculum and fulfillment of graduation requirements are some of the additional variables that may be evaluated.
2. The criteria for placing students in the program may be inadequate. One reason the findings were not conclusive is that students ranked in the fourth quintile of their high school class are not necessarily academic risks. Apparently some of the fourth quintile students possess academic skills. Any academic deficiency they had may have been remedied by the effects of having successfully attended college for a year.

Students in the fifth quintile, on the other hand, were found to have made significant gains when compared to the control group. An obvious reason may be that these students were more accurately identified as academically high-risk students.

3. Additional selective variables are needed to identify the academically high-risk student. DeVecchio, 1972, identified a number of additional variables which differentiates persisting students from withdrawing students.

Ankenbrand, 1972, demonstrates the relationship between poor self-concept and the high-risk student. In studies conducted at Bucks County Community College, evidence has been presented to indicate that the Comparative Guidance and Placement Program (CGPP) does make a significant contribution in the identification of academic risk students.

4. Consideration should be given to updating test dates on the CGPP. Specific tests of the CGPP have proved to be significant contributing variables to assist in identifying academic risk students. Unfortunately, CGP testing dates and academic advising are not scheduled far apart enough to permit all of the test reports to reach advisors. By being able to receive test reports earlier, departmental screening teams can be given time to carefully and accurately review the academic needs of the new student. Earlier testing need not imply the rejection of any applicant, but hopefully better placement.

5. It is recommended that a group counseling program, in the form of a course offering, be re-instituted in the basic studies program. The intent to utilize a course called Psychology of Personal Adjustment as a group counseling program proved innappropriate. The course itself had already developed a set of objectives which were not totally suited for the basic studies students.

Whereas, group counseling implies a process in which specific student problems are given attention. In this setting discussion and resolution of the problem becomes its objective. Furthermore, past research supports the observation that programs combining remedial courses and group counseling were consistently successful.

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REFERENCES

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APPENDICES

APPENDIX A

DESCRIPTION OF BASIC STUDIES COURSE OFFERINGS

A. College Reading Courses

1. English 109. College Reading I.

This course is an introductory college level reading course designed to improve a students reading rate, comprehension and basic study skills. A variety of materials and techniques will be utilized to help students in all areas of academic endeavor. Special tutoring, counseling and laboratory work will be provided.

2 credit hours.

2. English 110. College Reading II.

This course is a continuation of College Reading and Study Skills I. It will include a systematic study of the art of reading from an interdisciplinary viewpoint. Logical thinking, college vocabulary, dictionary skills, sentence sense, and methods of organization as well as a review of various study skills will be stressed. Special tutoring, counseling and laboratory work will be provided.

2 credit hours.

B. Writing courses

1. English 107. Basic writing I.

A foundations course designed to help students master the fundamentals of grammar, sentence structure, usage, and punctuation. The basic purpose of the course is to provide the tools that the student will need to begin the study of writing. Special tutoring, counseling and laboratory work will be provided.

2 credit hours.

C. Mathematics

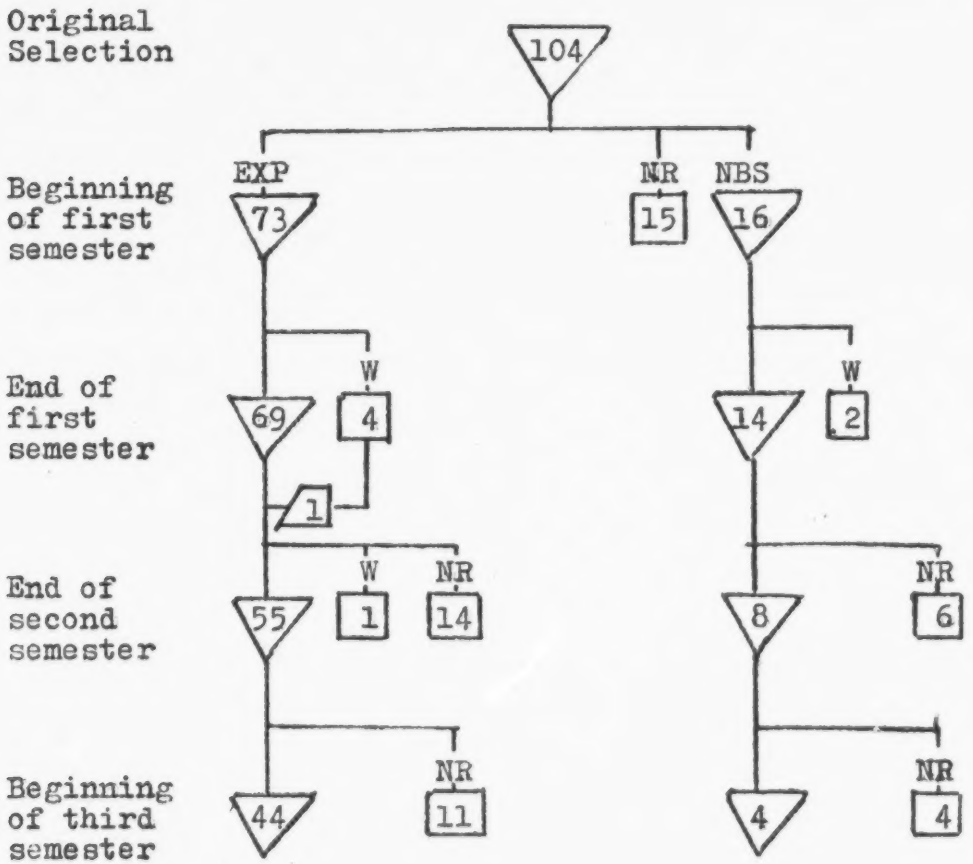
1. Mathematics 305. Basic Algebra.

This course will consist of a predetermined number of units from basic arithmetic through linear and quadratic algebraic equations. The initial entry point for each student will be determined by various diagnostic testing and an evaluation of the student's background. In consultation with the student, the staff will prescribe an individualized learning program utilizing the resources of the college learning center.

2 credit hours.

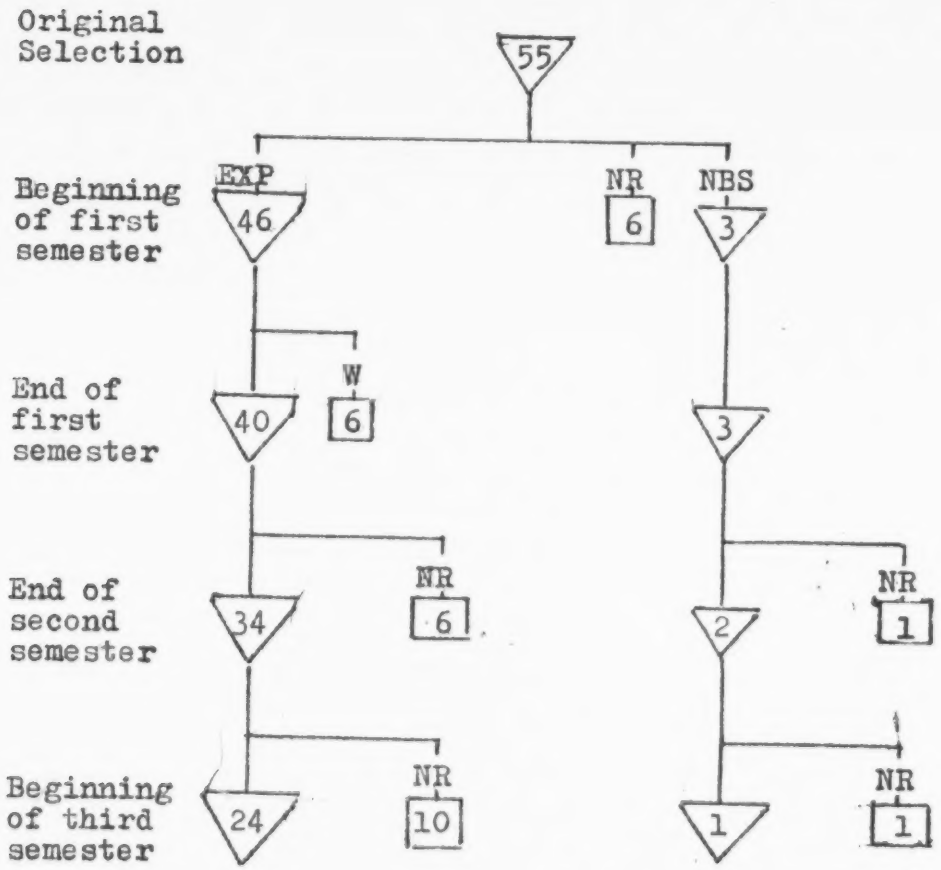
APPENDIX B

SUMMARY FLOW CHART DEPICTING ACADEMIC PROGRESS FOR STUDENTS RANKED IN THE FOURTH QUINTILE AND PLACED IN THE EXPERIMENTAL GROUP



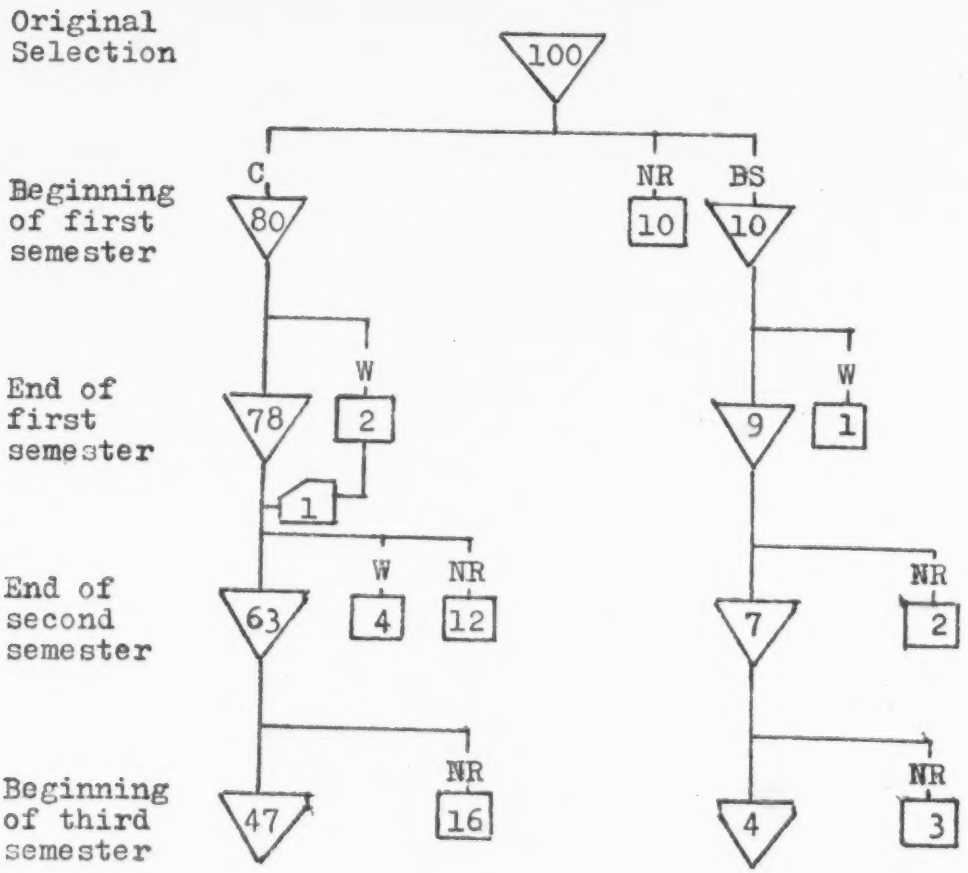
EXP- Basic studies student
NR - never registered
W - withdrew from college
NBS- no basic studies (excluded from study)

SUMMARY FLOW CHART DEPICTING ACADEMIC PROGRESS FOR STUDENTS RANKED IN THE FIFTH QUINTILE AND PLACED IN THE EXPERIMENTAL GROUP



EXP- Basic studies student
NR - never registered
W - withdrew from college
NBS- no basic studies (excluded from study)

SUMMARY FLOW CHART DEPICTING ACADEMIC PROGRESS FOR STUDENTS RANKED IN THE FOURTH QUINTILE AND PLACED IN THE CONTROL GROUP



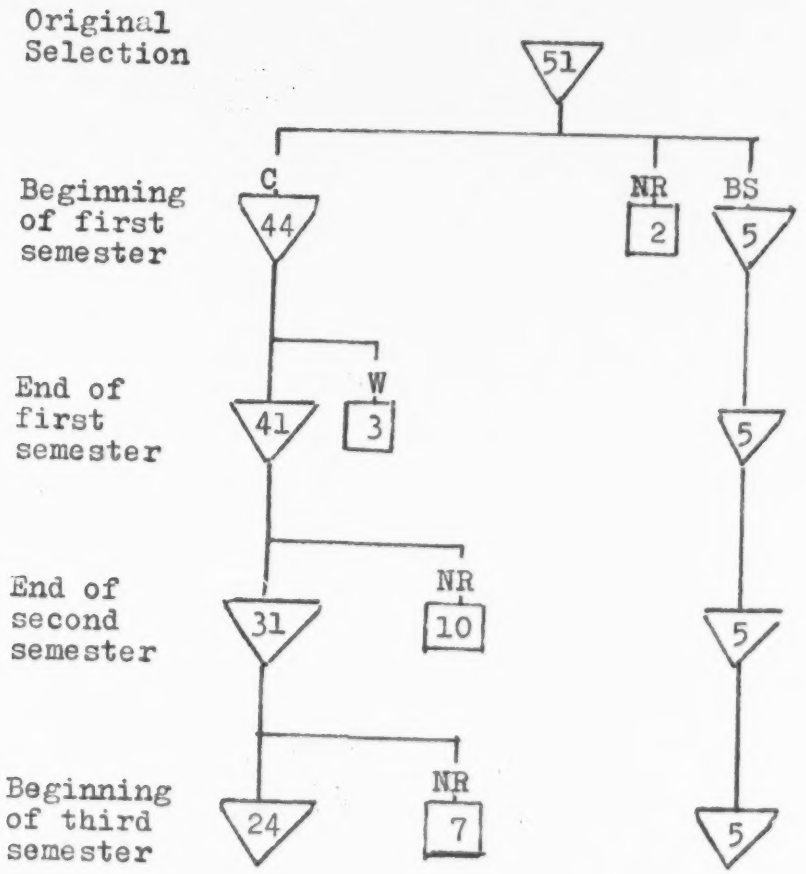
C - students selected regular schedule

NR - never registered

W - withdrew from college

BS - registered for basic studies course (excluded from study)

SUMMARY FLOW CHART DEPICTING ACADEMIC PROGRESS FOR STUDENTS RANKED IN THE FIFTH QUINTILE AND PLACED IN THE CONTROL GROUP



C - students selected regular schedule

NR - never registered

W - withdrew from college

BS - registered for Basic studies course (excluded from study)

APPENDIX C

PERCENT DISTRIBUTION OF CREDITS EARNED BY ALL DAY AND EVENING STUDENTS ATTENDING BUCKS COUNTY COMMUNITY COLLEGE SINCE 1965

Year student began college	N	Number of Credits Earned						
		0	1-11	12-23	24-35	36-47	48-59	60-up
1965	743	17	18	12	8	5	7	33
1966	1213	14	29	11	8	5	5	28
1967	1655	15	28	12	8	5	6	26
1968	2294	17	29	12	8	5	5	24
1969	2791	16	28	13	8	6	6	23
1970	3431	19	28	13	9	7	9	15
1971	3793	23	31	19	21	4	1	1
Total	15920	18	30	14	11	5	5	17

1. These totals were derived from a special research program which was run in November 1972.

APPENDIX D

PERCENT DISTRIBUTION OF GPA EARNED BY ALL DAY AND EVENING STUDENTS ATTENDING BUCKS COUNTY COMMUNITY COLLEGE SINCE 1965

Year student began college	N	GPA			
		0- 0.9	1.0-1.9	2.0-2.9	3.0-up
1965	743	24	20	39	17
1966	1213	19	20	40	21
1967	1655	21	21	38	20
1968	2294	24	16	37	23
1969	2791	22	16	39	23
1970	3431	23	13	36	28
1971	3793	28	13	30	29
Total	15920	24	15	36	25

1. These totals were derived from a special research program which was run in November 1972.

APPENDIX E

COMPARATIVE DISTRIBUTION BY AGE FOR THE STUDY GROUPS

Age	Group	
	Experimental	Control
17		1
18	9	3
19	108	113
20	24	21
21-24	16	9
25		2
Average	19.6	19.5

APPENDIX F

COMPARATIVE DISTRIBUTION BY CURRICULUM AREA FOR THE STUDY GROUPS

Curriculum Area	Group	
	Experimental	Control
All Transfer	77	84
Liberal Arts	50	58
Sciences	5	9
Business	22	17
All Career	42	40
Liberal Arts	16	14
Sciences	6	6
Business	20	20

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